

Middle Tennessee State University

## Information Technology Plan

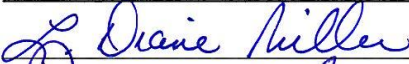
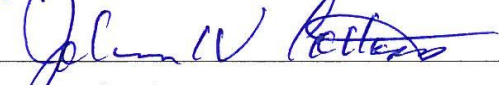
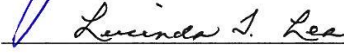
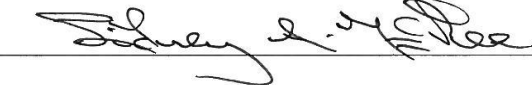
For the Tennessee Board of Regents

2010-2011

# Information Technology Plan

For the Tennessee Board of Regents

## 2010-2011

Institution submitting plan	Middle Tennessee State University
Chief Academic Officer	
Chief Financial Officer	
Chief Information Officer	
President	
Date submitted	April 30, 2010

## **Section I**

### **Middle Tennessee State University Information Technology Strategic Planning Process**

Middle Tennessee State University has in place a vigorous and vibrant information technology governance structure that greatly enables the strategic planning process.

#### **Campus Computing Committees**

The campus computing committees represent all university constituencies. They are charged to focus on university computing resources. The structure includes a computer executive committee, an instructional technology committee, an administrative computing committee, and an instructional technologies development committee. The committees work with input from all segments of the campus community and make recommendations to the president and appropriate vice presidents.

The computer executive committee, chaired by the provost, formulates the yearly information systems plan and develops criteria for the integration of technology throughout the University. Committee members consist of the president of the faculty senate, an academic dean, an academic department chair, an administrative department head, the chair of the administrative computing committee, the chair of the instructional technology committee, the senior vice president, the president of the student government association and the vice president for information technology and chief information officer (CIO), who serves as vice chair.

The instructional technology committee includes a faculty representative from each of the colleges of the University, the vice president for information technology and CIO, an academic dean, an academic chair, the manager of library automation, an administrator in the division of business and finance, an administrator in the division of development and university relations, two administrators in the division of student affairs and enrollment management, a computer lab director, president of the faculty senate, past president of the faculty senate, and two student representatives, including the student government association president. The director of academic technology planning and projects in academic affairs serves as an ex-officio member. This committee is instructed to make recommendations to the President for the allocation of student technology access fee (TAF) funds.

The administrative computing committee includes an at-large administrator; a representative from each of the University divisions: the president's division; academic affairs; student affairs and enrollment management; development and university relations; business and finance; and the vice president for information technology and chief information officer from the information technology division; and a student representative. ITD's assistant vice presidents for enterprise resource planning and network and information technology security serve as ex-officio members. The role of this committee is to develop new ideas for the use of technology in administrative

applications, advise administrative users on technology needs, and advise administrative users on hardware, software, and services.

The instructional technologies development committee is composed of seven voting faculty members and two ex-officio representatives. Faculty members of the committee include one representative from each undergraduate college and two at-large representatives from any undergraduate college. The ex-officio representatives come from the vice provost for research and dean of the college of graduate studies and the information technology division. The information technology division serves this committee on an administrative level by providing grant funds, mailing out grant and award application forms, serving as an information source, handling applicant paperwork, scheduling meetings, and consulting with grant recipients on their projects. The committee recommends the recipients of semester long instructional technologies development grants; updates and revises the guidelines as needed; selects the recipients of the annual faculty outstanding achievement in instructional technology award; and updates and revises the outstanding achievement in instructional technology award nomination procedures and recipient selection criteria/process as needed.

### **Budget Planning for Information Technology**

The instructional technology committee, as described above, makes recommendations to the President for allocation of the student technology access fee (TAF) funds. For the 2010-2011 year, approximately \$5.175 million will be available to fund instructional technology. TAF funds for the upcoming year are estimated by the business office.

Technology access fee guidelines are mandated by the Tennessee Board of Regents (TBR) and require fees to be used for projects that directly benefit students, including new and improved high technology laboratories and classrooms, appropriate network and software, computer and other equipment, and technological improvements in instruction. These include:

- Computers and other technical laboratory supplies, equipment, software and maintenance.
- Network costs (WWW, internet, interactive video, etc.)
- "Smart" or multi-media classroom equipment and classroom modifications
- Lab and course staffing – student and staff assistance for lab and classroom uses; universities are limited to a 12% maximum (Pool 2 current-year TAF revenues) and student employees only; community colleges are limited to 25% maximum (Pool 2 current-year TAF revenues) for student or staff employees.
- Renewal and replacement reserves as necessary.
- New machines for faculty use when faculty are actively engaged in developing and conducting on-line courses.
- Faculty and staff development directly related to the introduction or application of new technology which impacts students. These guidelines should have the flexibility to place instructional technology in a faculty lab where course materials are being prepared. For example, TAF funds can be used to create faculty labs to include the purchase of computers and to conduct faculty training

and course development. (Travel costs for faculty and staff are excluded; however, consultants may be hired as needed for training.)

- Infrastructure (wiring, network, servers, etc.) necessary to provide students maximum computing capability. A ceiling is established of 50% of the total project costs from which technology access fees can be used.
- Expand technology resources in library, i.e., video piped anywhere on campus, interactive video room for distance education, network for web video courses.

Effective July 1, 2005, institutions may use Technology Access Fee (TAF) revenues for the purpose of supporting the financing of the implementation of the Banner Enterprise Resource Planning (ERP) project including subsequent software and hardware upgrades. Use of TAF funds for this purpose is limited to a maximum of 25% of the annual revenue collected at universities, community colleges and technology centers. Use of TAF fees for the ERP project must be disclosed and justified in the annual spending plan which requires approval by the Board. The provision for use of TAF fees for this special purpose is limited to a maximum of five (5) fiscal years.

Compliance with these guidelines will be audited by the internal audit staff and reported to the Board as determined by the internal auditor's annual risk-based planning process or other appropriate means.

## **SECTION II**

### **Middle Tennessee State University Information Technology Goals 2010-2011**

#### **Major Goals 2010-2011**

As the 2010-2011 academic year approaches, the information technology division is collaborating with academic and administrative departments on major projects to enhance teaching, learning, and administration at the University in pursuant of the goals of the Academic Master Plan.

The goals of the MTSU Academic Master Plan are:

1. MTSU will promote academic quality by enhancing learning, teaching, scholarship, and service by celebrating MTSU's distinctive strengths.
2. MTSU will promote individual student access and responsibility for accomplishments through fostering a student-centered learning culture.
3. MTSU will promote partnerships and public service to enhance educational, social, cultural, and economic well-being.

Major MTSU information technology goals identified for the division in 2010-2011 are as follows:

1. Expand implementation of TTU disaster recovery capability to allow access and services from non-MTSU networks.
2. Complete the implementation of outsourced student email.
3. Install a Distributed Antenna System (DAS).
4. Bid and implement a new voice mail system.
5. Move into the new LT&ITC facility located in Walker Library and develop new collaborative offerings and services with academic affairs, library, and continuing studies staff.
6. Upgrade Resource25 as appropriate.
7. Rollout Argos reporting environment for the campus.
8. Complete several upgrades and add new services to the BlueID system.
9. Upgrade Banner Oracle to version 11g.
10. Replace campus wireless network with an 802.11n capable network.
11. Continue the deployment of server and desktop virtualization projects.

## **Summary of Strategic Goals/Objectives in Information Technology for 2010-2011**

### **Global**

Provide and manage the major areas of operation and services delivered through the Information Technology Division to meet the academic, administrative, communication, network, server, classroom, desktop, and telecommunication needs of the University in the most effective and efficient way possible.

### **Academic and Instructional Technology Services**

In addition to continuing the major areas of operation and services, major new or evolving initiatives for 2010-2011 include continued consultation and training for the Luminis Content Management system (LCMS); supporting conversion of additional sites, and monitoring of the maintenance plan to assure the currency of content on the home, root and portal pages. Support of the campus tour and interactive map will also be a priority along with investigating ways to expand the use of tour components. Research into new web technologies will continue.

Other major projects include: the continued system administration and support of Desire2Learn along with investigating new opportunities that D2L can provide for collaboration, research and integration of additional tools; administration of the Evaluation Feedback reporting and Footprints work order tracking systems; support for interactive forms and web-based surveys; and continuing research on new information and instructional technologies.

Continued growth of the Learning, Teaching and Innovative Technologies Center (LT&ITC) will occur as the center establishes a new location and evolves in providing services and professional development opportunities for faculty and in encouraging and supporting research in the scholarship of teaching and learning.

### **Administrative Information Systems**

We plan to expand the use of the Banner Document Management Suite and Workflow across campus. In addition, we will implement Resource25 Web Services in a production environment to provide additional report delivery methods. Other major projects include: assisting with the transition of database and migration to better hardware of Resource25 production environment; creating a transition plan for the current Physical Facilities Inventory reporting process to TBR so it can be removed from the legacy VMS system; implementing the new Argos reporting tool for campus-wide use while continuing to provide Microsoft Access workshops during transition to Argos; identify legacy Plus data to retain on data warehouse; complete the development of an interface from Banner to Housing Office's RMS system; complete the interface redesign from Banner to Health Service's Point 'n Click system; working with other departments in ITD to revise and

improve the current file transfer processes for Banner interface files; and continue to assist Database Administration Services with remaining phases of data warehouse (1)

### **Communication Support Services**

We plan to continue efforts to better equip the Help Desk personnel by using innovative instructional technology training tools. The Help Desk knowledge base will be a major focus of the area, which is a never-ending task of additions, deletions, and revisions.

We will continue to build the relationship with Columbia State Community College. We plan to continue the weekly conference call which has proven to be invaluable.

The major foci of the BlueID Office will be to research the feasibility and compatibility of using virtualization methods and to investigate ways of reducing licensing and support costs without jeopardizing the integrity of the system. We will also investigate more imports/exports to and from systems in order to give more real-time functionality to students.

### **Database Administration Services**

The primary focus for DAS in 2010-2011 will be to support Banner, MTSU's ERP system, in all aspects. We will continue our refocusing effort on the core responsibilities of database management, backup and recovery, performance tuning, database security, and customer support. Cross-training of current and new team members will be of major importance in order to successfully meet the challenges of supporting the Oracle RDBMS, the Oracle application servers, the third party products, the data warehouse, as well as the Banner ERP application. New versions of RDBMS's, application servers, Banner upgrades, patches and mods will need to be addressed quickly as new versions that impact core business functions are released continually. Third-party products and the data warehouse issues must be addressed quickly and carefully as changes to versions of the ERP system will require third-party product upgrades or changes to the data warehouse as well.

### **Network Services**

Disaster Recovery and redundancy will continue to be major important activities next year. Once completed, the fiber redundant ring will be populated with data circuits to provide a live redundant path for core communications for robustness. In addition, the TTU DR system will be enhanced to ideally allow for the seamless transition for critical services in the event of an infrastructure failure at MTSU.



If resources allow, a second campus egress will be installed to a different (non AT&T) service provider to provide a path to the Internet if the primary path through the state network is affected. Primary bandwidth usage may also be upgraded, particularly if NetTN infrastructure and support will allow for Internet2 destined multicast, thereby making possible the transitioning of the Internet2 connectivity from Vanderbilt to NetTN.

The wireless network will undergo a “forklift upgrade.” All transmitters will be replaced with 802.11n capable ones, and all of the switches and controllers will be replaced to accommodate the switch to the new system. This will constitute the third generation wireless network since its inception nearly ten years ago.

Enhancing security and protecting of networked resources will continue to be a major goal for the upcoming year. Security is no longer a buzzword, as more and more faculty, staff, and students understand the need for up to date security software and “safe computing” habits. Security education will continue, through workshops, self remediation when quarantined, the online tutorial, the Help Desk, and wherever else possible.

Network connectivity and services will be expanded when needed such as for the new College of Education building. Planning for future networks for the Student Union and Science buildings will continue as well.

### **Server, Classroom and Desktop Services**

The principal 2010-2011 goal for ITD’s Server, Classroom and Desktop Services units is a continued focus upon improving the efficiency, delivery and the reliability of the services provided by each area. The projects proposed for the 2010-2011 fiscal year accentuate commitment to that goal. The Server unit proposes to continue several projects involving the consolidation and virtualization of servers and server-related storage for the university. The results will be improved security, both lower management and utility costs. Working with the Server group and Network Services, the Classroom and Desktop Services units will be implementing a virtual desktop infrastructure that promises to deliver similar improvements in security, manageability and reduced desktop computing costs. The Server unit will also be working with Network Services to expand the functionality of the disaster recovery hotsite located at Tennessee Technological University to allow emergency access to the site from non-MTSU networks. Finally, all units will be looking to reduce operational expenses related to delivering e-mail services by evaluating and implementing a solution for outsourcing student e-mail.

### **Telecommunication Services**

Students, faculty, and staff are increasingly relying on wireless communication. Some wireless coverage and capacity exists on campus, but there are many areas needing additional service. To meet this need, the installation of a distributed antenna system

(DAS) to add coverage and capacity for wireless communication will proceed. The RFP process for the service is complete and should result in installation of a system with procedures and policies for ongoing maintenance and support.

It is critical that the voice communication system be available to serve campus communication needs. One way to help assure continuous reliable service is to have a maintenance agreement with a service provider. Our current agreement for phone switch maintenance and support is ending. Therefore, we will issue an RFP for maintenance, technical support, and equipment purchases for the Avaya communication system.

The Intuity voice mail system has served the campus well since 1999. However, Intuity reaches end of support from Avaya in June 2011 and needs to be replaced with a supported product. An RFP for a replacement voice mail and/or unified communication system will be written.

### **Summary of Proposed TAF Allocations for 2010-2011**

Projects in the following categories have been recommended for TAF funding for 2009-2010: computer laboratory supplies and equipment, network costs (WWW, Internet, etc.), smart/multimedia classrooms, student staffing for labs, renewal and replacement reserves, faculty equipment for online courses, faculty & staff development for new technology, infrastructure for student computing, and expansion of technology resources in the library.

A large percentage of funds have been allocated for instructional technology for classrooms and labs. Some of the recommendations for funding the instructional technology for classrooms and labs include the following:

- Equipment for the Dairy Farm in Agribusiness and Agriscience
- Lighting and Sound upgrades for Speech and Theatre
- Sound upgrades in Tucker Theater and equipment upgrades in the MIDI lab for Recording Industry
- Fume Hood replacement for the College of Basic and Applied Sciences
- Equipment upgrades for Health and Human Performance
- Weapons Simulator for Military Science
- Equipment for Economics

Other recommended allocations include the following:

- Maintenance of University Computer Lab at BAS
- Maintenance of University Computer Lab at Walker Library
- Maintenance of University Computer Lab at LRC
- Maintenance of Adaptive Technologies Computer Lab at Walker Library
- Maintenance of University Computer Lab at KOM
- Pay for student staffing on 24/7 help desk

- Campus emergency repair and replacement
- Scheduled replacement of instructional computers located in classrooms and computer labs
- Computer upgrades for the University Computer Lab at Walker Library
- Adaptive Technologies Computer Lab at Walker Library equipment and Upgrades
- Computer upgrades for the University Computer Lab at BAS
- Computer upgrades for the University Computer Lab at LRC
- Computer upgrades for the University Computer Lab at KOM
- Master Classroom upgrades for Art
- Master Classroom upgrades for Nursing
- Master Classroom upgrades for Music
- Software upgrades for Human Sciences
- Portable Master Classrooms for Continuing Education and Distance Learning
- New Master Classroom for Electronic Media Communications
- Portable Master Classrooms for History
- New Master Classroom for Mathematical Sciences
- Master Classroom upgrades and Portable Master Classroom for College of Liberal Arts
- New Master Classroom for Economics and Finance
- Library electronic databases available on the Internet
- Purchase recurring annual maintenance/license for academic support software
- Purchase Microsoft software for university server
- Purchase PC virus protection for university server
- Purchase MAC virus protection for university server
- Classroom AMX Upgrade
- Upgrade wireless network
- FRANK Replacement
- Network Upgrade Workgroup Switch Replacement
- University-wide Active Directory Upgrade
- PipelineMT Upgrade
- CopySense for Wireless

### **Summary of New Projects (Primarily Non-TAF) for 2010-2011**

- Blanket all campus computers with the most current version of Office and Windows upgrades.
- Perform various upgrades to the network infrastructure to include the backbone, routers, and switches and replace outdated equipment.
- Install peer-to-peer manager for wireless network to complement the unit installed for the residence halls and Greek Row as part of the overall strategy to combat peer-to-peer file sharing of copyrighted materials.
- Replace VH and V2 series workgroup switches with up-to-date switches.
- Replace wireless network and associated equipment with new equipment that conforms to the 802.11n standard.
- Provide scalable Luminis/PipelineMT infrastructure for both the Web and Application Tier of the Luminis deployment.
- Establish the infrastructure for providing lower cost enterprise class storage utilizing iSCSI technologies to supplement existing fiber channel-based storage.
- Establish the infrastructure for replacing student-accessible computers in a virtual computer/desktop environment.
- Establish the infrastructure for replacing non-student accessible computers in a virtual computer/desktop environment.
- Support consolidation and virtualization of Windows-based servers and expand the 2008-2009 implementation to virtualize 30 additional servers, software licenses and the associated storage.
- Evaluate the options for upgrading and/or replacing the current e-mail system.
- Replace the MCC's with a new G650 or G450 cabinet that uses less space, power, and cooling resources.
- Migration of current tape based backup storage to an archived, disk-based solution to significantly improve the availability and reliability of backed up data.
- Purchase a new voice mail system.
- The acquisition of software for academic and/or administrative use to be hosted on ITD servers.
- The acquisition of hardware for academic and/or administrative use to be hosted on ITD servers.

### **Section III**

#### **Overview of MTSU's Major Information Technology Accomplishments in 2009-2010**

##### **Academic and Instructional Technology Services**

Accomplishments included the continued management of Web page content via the Luminis Content Management system, continuing to convert priority sites. We completed a heuristic review of the MTSU domain content and navigation structure and developed, implemented, and completed a project to publish a new design, global navigation and portal page structure, converting over 300 sites / 5,000 pages. We implemented a plan for maintaining content on the home, root, and portal pages in collaboration with Departments of Marketing Communications, News and Public Affairs, Photographic Services, Admissions, Students Affairs, and the Provost's office. Additional Web accomplishments included research and introduction of new technologies, including a new search engine.

Programming support was given on academic programming needs, including additional capabilities for the Student Evaluation of Faculty Effectiveness; scanning and statistical analysis, administering and analyzing data collection surveys and reports; and the development of database applications and Web-based interfaces.

Providing and supporting learning technologies that enhance curricula and course development, delivery and management remains a priority. System administration and support of Desire2Learn continued as did workshops, individual consultations, and providing enhanced Web-based resources to the university community. Research into new instructional technology and teaching/learning strategies including new software, hardware and teaching pedagogies to support e-learning is continuous so as to provide the most up-to-date support. Faculty grants and fellowships were provided to encourage and support technology integration into teaching and learning. The Learning, Teaching and Innovative Technologies Center (LT&ITC) provided mentoring, resources and professional development opportunities to faculty in pedagogy and instructional technology.

Additional accomplishments included assisting with institutional effectiveness matrix documentation; analysis of student, faculty and staff surveys; presenting at new employee and new faculty orientations; and participating in various university committees.

##### **Administrative Information Systems**

The work on a major version upgrade of Banner, from 7.5 to 8.2, has been underway much of this fiscal year and is scheduled for completion April 2010. Much research has been required to determine third-party product version dependencies with this upgrade as well as consequences of the vendor's new PIN encryption techniques.

SunGard's removal of the Java Payment Client has also required much research and planning as that will impact our self-service systems. The Workflow system was implemented in a production environment at the end of the previous fiscal year and several workflows have been created and put to use this fiscal year. An enterprise imaging solution, Banner Document Management Suite, was implemented in a production environment in fall 2009 with two main administrative offices now using the system and other offices in progress. We worked on content and integration tasks needed during the upgrade of PipelineMT to the Luminis IV platform. We also worked with Parking Services to help them remove SSN from their Cardinal System and assisted Health Services to remove SSN as the primary key from their Point'nClick System.

An interface from Banner to the Alumni Office's iModules System was completed. The interface from Banner to Housing's RMS system is approximately 50 percent complete and is targeted for completion soon.

The College of Mass Communication went live with Resource25. We worked with other offices in ITD to implement Web Services on the Resource25 test environment as well as change its database platform and transition to a new virtual environment for its test system. This is in preparation for the same tasks in the production Resource25 system.

We developed with other ITD directors the new ITD Project Planning Guide and created data blocks on the new Argos reporting tool in preparation for the future implementation of that product for the campus. We performed quality assurance testing of Banner and its partner systems as ITD moved to newer, better performing hardware for the Banner environment. We performed quality assurance testing of Plus as ITD moved it from the old large scale VMS cluster to a smaller, more cost-effective single VMS machine. Several new programs were created to assist ITD with e-mail box cleanup on Mirapoint.

New features were added to several of the Banner Self-service systems benefiting advisors, faculty, students, and employees, and programs were created to work with VoteNet as the new software for SGA elections. We re-organized locally developed software into a new database schema for easier management during upgrades and created new student campus directory publisher files to mark each student who opted out of credit card solicitations, honoring new credit card solicitation laws in Tennessee. We created new programming to enable PipelineMT, e-mail, and/or RaiderNet access for special populations such as Visiting Scholars, Ed Leadership Cohort participants, and Dual Admission students. Microsoft Access workshops continue to be offered each year. A total of 925 work orders were submitted with 802 being completed.

### **Communication Support Services**

The BlueID Office took on many projects this year ranging from the installation of major upgrades and programs to redesigning meal plans and reports to purging old balances. The office also continued to focus on the branding of printed material and the remaking of ID cards.

The Help Desk continues to improve upon customer service. The student laptop program more than doubled in size in the fall mainly due to the installation of a new network access control program. We also introduced a decision tree for student assistants to use while working on laptops that has proven to be beneficial. The Help Desk continues to handle large volumes of calls, e-mails, and walk-ins.

The partnership between Columbia State Community College and MTSU's Help Desk continues to be successful.

### **Database Administration**

The Database Administration Services group met all challenges provided by 2009-2010. Daily activities of system maintenance and support were the main focus. Additionally, major milestones were met, such as the Oracle RDBMS upgrade to 10.2.0.4, the Banner 8 upgrade, the installation of Oracle CPU's, the implementation of an Oracle Enterprise Manager Repository (GRID), and Disaster Recovery preparation efforts. Unplanned for events, such as supporting the Intellicheck upgrade and performing a PROD point in time recovery, were also handled by the DAS group during this time. Significant steps have been made to improve redundancy, security, and recoverability to all systems supported by DAS while taking on the immense task of installing all Banner upgrades, patches, and mods.

### **Network Services**

Network Services continued to upgrade and expand network connectivity where needed. This included not only data network upgrades such as in KUC and DSB, implementation of the 802.11n wireless pilot project, and new data network installations such as for Maple Leaf and 745 South Church, but connectivity for fire alarms, building monitoring, video, and other communications. Network connectivity was also directly established with Rutherford County. In addition, campus network capacity was expanded with the upgrade of the campus backbone interconnections from 1 Gbps to 10 Gbps.

In the summer of 2009 the Clean Access NAC system was replaced with a more feature rich and accurate version from Enterasys. This has reduced the chances of a machine being infected with a virus or a worm from spreading the infection by mandating the malware is removed before network access is permitted. Another feature of Enterasys NAC denies network access if one of many popular Peer to Peer (P2P) programs is running.

The remote site at Tennessee Technological University came online with servers, a switch, and a firewall installed at Cookeville to complete the first phase of providing off-site support and storage for disaster recovery. Work is continuing on the steps necessary to make this a truly hot secondary site for critical applications. To aid in disaster

recovery as well as efficiency, work was begun on a fiber optic cable “ring” that will provide for redundant pathways across campus. This complements and enhances the existing extensive underground fiber optic cable plant, increasing the robustness and efficiency of data communications.

The packet shaping device for the campus Internet connection was replaced with newer technology with enhanced features and capabilities. Packet shaping is a technology to manage how bandwidth is used, eliminating the chance that one single machine “hogs” this shared resource. Shaping also provides other features, including monitoring, security, and serves as another layer in the P2P management strategy.

Further enhancing security and performance was the replacement of the firewall at the edge of the campus network. This firewall replaces a unit that had been in service for several years and was nearing the ceiling of its performance and end of its expected life. The new firewall is robust enough to allow for substantial growth in throughput demand over the next few years. Replacing the internal central services firewall with a distributed system for robustness and reliability as part of an overall trend towards building redundancy into all critical systems and paths is underway. In addition, a project is in process to replace the current central systems Virtual Private Network (VPN) system, currently requiring a client installed on machines using it, with redundant “VPN Concentrators” that will allow for greater security utilizing security built into Web browsers (thereby negating the need for a separate client).

### **Server, Classroom and Desktop Services**

The principal goal for ITD’s Server, Classroom and Desktop Services units centers around improving the delivery and the reliability of the services provided by each area. The corresponding accomplishments for the 2009-2010 Fiscal Year accentuate a commitment to that goal. Two significant accomplishments achieved by the server unit working with ITD’s Database Services, Network Services, and AISS units were the successful replacement of the core database servers for the Banner ERP system and the establishment of a Banner/PipelineMT hot site on the campus of Tennessee Technological University. In addition, major upgrades to the PipelineMT portal, the active directory domain infrastructure and the campus e-mail systems were completed. Both the Classroom and Desktop Services Units also pursued this goal through projects involving the replacement of older systems, the establishment of new master classrooms, and better organizing equipment inventory data. In preparation for 2011-2010 initiatives, all three areas collaborated to initiate the establishment of virtual server and virtual desktop infrastructures.



## **Telecommunication Services**

An RFP for a distributed antenna system (DAS) to add wireless communication coverage and capacity was written. The DAS must be installed and hopefully agreements with several wireless carriers will be executed. Wireless communication capabilities will be greatly enhanced by the DAS. RFP responses were received in February 2010. A contract is expected before the end of the semester with installation to take place in summer 2010.

We evaluated options to increase fixed-mobile convergence so that employees have more communication options when they are not in their office. This could include consideration of a Blackberry Enterprise Server (BES) to serve the wireless communication needs of Blackberry wireless device users. A better process for syncing campus e-mail with wireless mobile devices is now in place. Evaluation of wireless convergence possibilities is ongoing.

We issued an RFP for maintenance, technical support and equipment purchases related to the Avaya communication system. The new contract will help assure the ongoing reliability of the system. A contract is in place to provide maintenance, technical support, and equipment purchases for the Avaya communication system.

## Section IV

### Description of Technology Access Fee Proposals & Costs - July 1, 2009

#### Original Fee of \$15 Per Student (Pool 1) (Proposal number in parenthesis)

#### 5 Recurring costs for computer labs (includes student staffing\*)

A	University Computer Lab at BAS (1071)	\$245,560
B	University Computer Lab at Walker Library (1072)	\$77,033
C	University Computer Lab at LRC (1073)	\$76,915
D	Adaptive Technologies Computer Lab at Walker Library (1074)	\$93,523
E	University Computer Lab at KOM (1079)	\$43,426
F	University Help Desk (1084)	\$87,590

**Total category 5** **624,047**

#### Additional Fees (Pool 2)

#### 1 Instructional computers and peripherals

A	Scheduled replacement of instructional computers located in classrooms and computer labs (1098)	\$744,000
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**Total category 1** **\$744,000**

#### 2 Computer lab technology

A	Computer upgrades for the University Computer Lab at LRC (1003)	\$10,000
B	Adaptive Technologies Computer Lab at Walker Library equipment and Upgrades (1006)	\$99,305
C	Computer upgrades for the University Computer Lab at Walker Library (1017)	\$18,835
D	Computer upgrades for the University Computer Lab at KOM (1030)	\$37,600
E	Computer upgrades for the University Computer Lab at BAS (1032)	\$100,050

**Total category 2** **\$265,740**

#### 3 Master classrooms (new, renovated, and portable)

A	New Master Classrooms for Chemistry (1002)	\$89,325
B	Master Classroom upgrades for Honors (1007)	\$98,270
C	Master Classrooms upgrades for the College of Mass Communications (1013)	\$67,383
D	Master Classroom upgrades and Portable Master Classroom for Electronic Media Communication (1014)	\$57,463
E	New Master Classroom for Human Sciences (1015)	\$79,500
F	New Master Classroom for Foreign Languages (1022)	\$93,000
G	Master Classroom upgrades and Portable Master Classroom for the College of Liberal Arts (1026)	\$88,648

H	Master Classroom upgrades for Business Communication and Entrepreneurship (1033)	\$100,000
I	Master Classroom upgrades for Accounting (1034)	\$46,500
J	Master Classroom upgrades for Computer Information Systems (1035)	\$46,500
K	Master Classroom upgrades for Continuing Education (1036)	\$18,205
<b>Total category 3</b>		<b>\$784,794</b>
<b>4</b>	<b>Instructional technology for classrooms and labs</b>	
A	Upgrades to Mobile Production Laboratory (1001)	\$333,095
B	Equipment for the Microbiology and Physiology lab in Chemistry (1009)	\$105,500
C	Lighting upgrades for Speech and Theatre (1018)	\$125,000
D	Accounting Databases (1037)	\$24,560
E	Physiological Measurements Equipment for Psychology and Health and Human Performance (1040)	\$187,876
F	Laser Engraver with Filtration System for Art (1042)	\$196,328
<b>Total category 4</b>		<b>\$972,359</b>
<b>5</b>	<b>Recurring costs</b>	
A	Library electronic databases available on the Internet (1083)	\$275,000
<b>Total category 5</b>		<b>\$275,000</b>
<b>6</b>	<b>Campus infrastructure projects</b>	
A	Purchase recurring annual maintenance/license for academic support software (1085)	\$301,574
B	Purchase Microsoft software for university server (1086)	\$52,000
C	Purchase PC virus protection for university server (1087)	\$15,000
D	Purchase MAC virus protection for university server (1088)	\$5,000
E	Traffic Shaping (1089)	\$70,540
F	Upgrade wireless network (1090)	\$32,015
G	Network Upgrade in Keathley University Center (1091)	\$52,434
H	Network Upgrade in Davis Science Building (1092)	\$74,937
I	University-wide Active Directory Upgrade (1093)	\$129,000
J	PipelineMT Upgrade (1094)	\$67,500
<b>Total category 6</b>		<b>\$800,000</b>
<b>7</b>	<b>Emergency repair and replacement of instructional technology</b>	
A	Campus emergency repair and replacement (1070)	\$421,107
<b>Total category 7</b>		<b>\$421,107</b>
<b>TOTAL ALL CATEGORIES</b>		<b>\$4,900,000</b>

## Section V

### Description of Technology Access Fee Proposals & Costs - July 1, 2010

#### Original Fee of \$15 Per Student (Pool 1)

(Proposal number in parenthesis)

#### 5 Recurring costs for computer labs (includes student staffing\*)

A	University Computer Lab at BAS (1171)	\$245,560
B	University Computer Lab at Walker Library (1172)	\$77,033
C	University Computer Lab at LRC (1173)	\$76,915
D	Adaptive Technologies Computer Lab at Walker Library (1174)	\$93,523
E	University Computer Lab at KOM (1179)	\$43,426
F	University Help Desk (1184)	\$96,546

**Total category 5** **633,033**

#### Additional Fees (Pool 2)

#### 1 Instructional computers and peripherals

A	Scheduled replacement of instructional computers located in classrooms and computer labs (1198)	\$796,200
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**Total category 1** **\$796,200**

#### 2 Computer lab technology

A	Computer upgrades for the University Computer Lab at Walker Library (1123)	\$99,775
B	Adaptive Technologies Computer Lab at Walker Library equipment and Upgrades (1126)	\$56,535
C	Computer upgrades for the University Computer Lab at KOM (1138)	\$30,050
D	Computer upgrades for the University Computer Lab at LRC (1143)	\$63,556
E	Computer upgrades for the University Computer Lab at BAS (1148)	\$96,000

**Total category 2** **\$345,916**

#### 3 Master classrooms (new, renovated, and portable)

A	New Master Classrooms for Art (1102)	\$94,064
B	Master Classroom upgrades for Nursing (1108)	\$100,000
C	Master Classrooms upgrades for Music (1115)	\$99,282
D	Software upgrades for Human Sciences (1125)	\$25,480
E	Portable Master Classrooms for Continuing Education and Distance Learning (1130)	\$63,500
F	New Master Classroom for Electronic Media Communications (1131)	\$99,889
G	Portable Master Classrooms for History (1133)	\$67,458
H	New Master Classroom for Mathematical Sciences (1140)	\$83,000
I	Master Classroom upgrades and Portable Master Classroom for College of Liberal Arts (1141)	\$94,823

J	New Master Classroom for Economics and Finance (1146)	\$88,000
K	Master Classroom upgrades for Continuing Education (1036)	\$18,205
<b>Total category 3</b>		<b>\$815,496</b>
<b>4</b>	<b>Instructional technology for classrooms and labs</b>	
A	Equipment for the Dairy Farm in Agribusiness and Agriscience (1100)	\$198,000
B	Lighting and Sound upgrades for Speech and Theatre (1111)	\$196,200
C	Sound upgrades in Tucker Theater and equipment upgrades in the MIDI lab for Recording Industry (1118)	\$198,500
D	Fume Hood replacement for the College of Basic and Applied Sciences (1128)	\$180,000
E	Equipment upgrades for Health and Human Performance (1136)	\$60,350
F	Weapons Simulator for Military Science (1139)	\$200,000
G	Equipment for Economics (1144)	\$96,287
<b>Total category 4</b>		<b>\$1,129,337</b>
<b>5</b>	<b>Recurring costs</b>	
A	Library electronic databases available on the Internet (1183)	\$275,000
B	Recurring costs for open computer labs	\$100,000
<b>Total category 5</b>		<b>\$275,000</b>
<b>6</b>	<b>Campus infrastructure projects</b>	
A	Purchase recurring annual maintenance/license for academic support software (1185)	\$302,709
B	Purchase Microsoft software for university server (1186)	\$61,500
C	Purchase PC virus protection for university server (1187)	\$22,218
D	Purchase MAC virus protection for university server (1188)	\$5,000
E	Classroom AMX Upgrade (1189)	\$11,650
F	Upgrade wireless network (1190)	\$160,076
G	FRANK Replacement (1191)	\$12,000
H	Network Upgrade Workgroup Switch Replacement (1192)	\$92,500
I	University-wide Active Directory Upgrade (1193)	\$17,330
J	PipelineMT Upgrade (1194)	\$45,500
K	CopySense for Wireless (1195)	\$70,000
<b>Total category 6</b>		<b>\$800,483</b>
<b>7</b>	<b>Emergency repair and replacement of instructional technology</b>	
A	Campus emergency repair and replacement (1170)	\$327,391
<b>Total category 7</b>		<b>\$327,391</b>
<b>TOTAL ALL CATEGORIES</b>		<b>\$5,175,000</b>

## Section VI

### New MTSU Project List (Primarily Non-TAF) 2010-2011

Project Name	Description	Cost	Account Number
Microsoft Campus Agreement	This project will blanket all campus computers with the most current version of Office and Windows upgrades.	\$123,000	2-43150 2-40700
Network Infrastructure Upgrades	This project performs various upgrades to include the backbone, routers, and switches and will replace outdated equipment.	\$100,000- \$1,000,000	7-73104
CopySense P2P Manager for Wireless Network	Install peer to peer manager for wireless network to complement unit installed for the residence halls and Greek Row in March 2009 as part of the overall strategy to combat peer to peer file sharing of copyrighted materials.	\$70,000- \$80,000	2-40700
Network Switch Upgrades	Replace VH and V2 series workgroup switches with up to date switches.	\$170,000- \$190,000	2-40700 7-73104
Wireless Network Upgrades	Replace wireless network and associated equipment with new equipment that conforms to the 802.11n standard.	\$320,000- \$360,000	2-40700 7-73104
Luminis Parallel Deployment	Provide scalable Luminis/PipelineMT infrastructure for both the Web and the Application Tier of the Luminis deployment. This will allow additional web and/or application servers to be added on demand without reconfiguration.	\$100,000	7-73104 2-40700
SAN Infrastructure Replacement	Establish the infrastructure for providing lower cost enterprise class storage utilizing iSCSI technologies. This storage will initially supplement existing fiber channel based storage with the intent of replacing that storage when it reaches its end-of-life in two years.	\$150,000	7-73104
PC Virtualization Instructional	Establish the infrastructure for replacing student accessible computers in a virtual computer/desktop environment.	\$130,000	2-40700

PC Virtualization Non-Instructional	Establish the infrastructure for replacing non-student (i.e. employee) computers in a virtual computer/desktop environment.	\$100,000	7-73104
Virtualization Infrastructure	Support consolidation and virtualization of Windows-based servers. Expand the 2008-2009 implementation to virtualize 30 additional servers, software licenses, and the associated storage.	\$66,000	7-73104
Tapeless Backup	Migrate current tape-based backup storage to an archived, disk-based solution. This project will save a minimum of \$10,000/year in media costs and should significantly improve the availability and reliability of backed up data.	\$100,000	7-73104
E-mail Replacement	Evaluate options for upgrading and/or replacing the current faculty/staff e-mail system.	\$180,000	7-73104
Upgrade to Avaya Hardware	Our Avaya voice communication system uses Multi-Carrier Cabinets (MCC) to support circuit packs for various purposes such as digital phones, analog phones, trunks, special processing, etc. The MCC cabinets are no longer supported by the manufacturer, Avaya. The project is to replace the MCC's with a new G650 or G450 cabinet that uses less space, power, and cooling resources.	\$400,000	7-73106
New Voice Mail System	This project is to purchase a new voice mail system. The current system will reach its end of support in June 2011, so a failure in the the system after that date could mean the system is not repairable.	\$75,000- \$300,000	7-73106
Upgrades to Academic and Administrative Software	The project encompasses the acquisition of software for academic and/or administrative use to be hosted on ITD servers.	\$100,000- \$500,000	7-73104
Upgrades to Academic and Administrative Hardware	The project encompasses the acquisition of hardware for academic and/or administrative use to be hosted on ITD servers.	\$100,000- \$500,000	7-73104

